



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/812,969	03/31/2004	Jean-Michel Franchet	251003US41	4877
22850	7590	12/18/2007		
OBLON, SPIVAK, MCCLELLAND MAIER & NEUSTADT, P.C. 1940 DUKE STREET ALEXANDRIA, VA 22314				
			EXAMINER	
			ABOAGYE, MICHAEL	
			ART UNIT	PAPER NUMBER
			1793	
			NOTIFICATION DATE	DELIVERY MODE
			12/18/2007	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

patentdocket@oblon.com
oblonpat@oblon.com
jgardner@oblon.com

Office Action Summary

Application No.

10/812,969

Applicant(s)

FRANCHET ET AL.

Examiner

Michael Aboagye

Art Unit

1793

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 05 October 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 and 22 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-20 and 22 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1, 2, 4-9 11, 12, 14-17 , 18- 20 and 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Buldhaupt et al. (US Patent No. 5,994,666) in view of Fujita et al. (US 6,448,530).

Buldhaupt et al. teaches a method of fabricating a hollow mechanical part by diffusion welding and superplastic forming by providing at least two primary parts of superplastic material, said primary parts having two faces and a periphery (see sheets "44,46", figure 2); forming a pattern of an anti-diffusion or a stop-off material on at least one face of said two faces of said primary parts (column 3, lines 25-30) (note stop-off material is accurately placed in areas where the primary parts are not intended to bond together, therefore, said placement is done in a predetermined pattern). Placing the sheets (44,46) in a vertical stack, with the stop-off coated surface of the one sheet facing the other sheet; applying laser weld head to press the primary core sheets together and laser-welds; wherein the laser travels through the stop-off material; wherein the laser is moved in a predetermined path by a computer-controlled (CNC)

drive system in the presence of argon (column 6 lines 53-67). Said anti-diffusion material comprises boron nitride which is mixed with water and sprayed on at least on of the sheets; assembly the parts into a stack, defining a cavity, diffusion welding the stack, placing the welded assembly into a mold and superplastically forming a blank (figures 2, 4 6A, column 5 line 66 – column 7 line 33, column 8 lines 49 - column 9 line 65); wherein the stack is cleaned before diffusion bonding under isostatic pressure (column 3, line 60- column 4, line 8 and column 9, lines 22-29).

Buldhaupt et al. does not expressly teach applying a laser beam directly onto the anti-diffusion substance prior to stacking –up.

Fujita et al. teaches forming a honeycomb structure (column 1, lines 5-11), applying a metal powder as a closing agent or anti-diffusion substance (6, figures (10 (A&B)) in a pattern on at least one face of a part (pool grooves) and applying a laser beam directly onto the anti-diffusion substance to selectively coagulate or sinter the powder particles prior to stacking–up or assembling the parts for diffusion bonding (Fujita et al., column 5, lines 1-24, column 9, lines 34-41 and figures 3-13(A&B)); wherein the closing agent is selectively permitted to coagulate in the pool grooves (2 figures (10 (A&B)) and removing the uncoagulated or excess closing agent from the slit of the grooves (3 figures (10 (A&B)) which serve as partitioning walls (Fujita et al., column 5, lines 8-13); wherein the laser irradiation provides for selective or localized heating and sintering and thereby allowing selective and precision closing of the stack during diffusion bonding to form said honeycomb structure (Fujita et al., column 5, lines 17-24 and column 12, lines 11-16)

It would have been obvious to one of ordinary skill in the art at the time the applicant's invention was made to modify the invention of Buldhaupt et al. to apply a laser beam directly onto the anti-diffusion substance prior to stacking –up as taught by Fujita et al. to provide for selective or localized heating and sintering and thereby allowing selective and precision closing of the stack during diffusion bonding to form said honeycomb or hollow structure (Fujita et al., column 5, lines 17-24 and column 12, lines 11-16).

3. Claims 3, 10 and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Patent No. 5,994,666) in view of Fujita et al. (US 6,448,530) as applied to claim 1 above and further in view of Sanders (US 2002/0179688 A1) and Weisert et al. (USPN 4220276).

Buldhaupt et al. and Fuji et al. do not expressly teach stop-off material made of yttrium oxide, forming a turbine blade nor brushing to remove excess material.

Sanders teaches a stop-off material made of either boron nitride or yttrium oxide (paragraph 31) as alternative anti-diffusion materials in a conventional diffusion bonding/ superplastic forming process (paragraphs 31-37) used to form turbine blades (paragraph 42). It would have been obvious to one of ordinary skill in the art at the time applicant's invention was made to modify the combined invention of Buldhaupt et al. and Fuji et al. to use yttria or yttrium oxide as a stop-off material as taught by Sanders since yttria is an obvious variant of stop-off materials used in diffusion bonding (Sanders, paragraphs 31-37).

Buldhaupt et al., Fuji et al. and Sanders do not expressly teach the grain size of the yttria powder.

However Weisert teaches anti-diffusion made of yttrium having a particle size of approximately 10 microns, which is highly sinterable and also allow parts to be formed under diffusion bonding with sound bond integrity (abstract and column 3, lines column 32-65 and column 4, lines 37-50). It would have been obvious to one of ordinary skill in the art at the time of the applicant's invention was made to modify the combined invention of Buldhaupt et al., Fuji et al. and Sanders to use an anti-diffusion material made of yttrium having particle size of approximately 10 microns as taught by Weisert in order to form parts by diffusion bonding with sound bond integrity (Weisert, abstract and column 3, lines column 32-65 and column 4, lines 37-50).

Response to Arguments

4. The examiner acknowledges the applicants' remarks/arguments received by the USPTO on Octoberber 05, 2007. Claims 1-20 and 22 are currently under consideration in the application.

5. Applicant's arguments with respect to claims 1-20 and 22 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

6. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael Aboagye whose telephone number is 571-272-8165. The examiner can normally be reached on Mon - Fri 8:30am - 5pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jonahan Johnson can be reached on 571-272-1177. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Application/Control Number:
10/812,969
Art Unit: 1793

Page 7

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



JONATHAN JOHNSON
SUPERVISORY PATENT EXAMINER



Michael Aboagye
Assistant Examiner
Art Unit 1725

AM

AM

12/11/2007